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# EXPRESS MAIL CERTIFICATE

"Express Mail" Label No. : EV 130 844 666 US  
Serial No. : 09/638,485  
Applicant(s) : Charles J. JACOBUS  
Filing Date : August 14, 2000  
Title: : Force Feedback System and Actuator  
Power Management  
Examiner : Tyrone W. Smith  
Group Art Unit : 2837  
Type of Document(s) : Express Mail Certificate;  
Transmittal Form;  
Supplemental Information Disclosure Statement;  
PTO/SB/08A (formerly 1449);  
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Carol McCabe (signature)  
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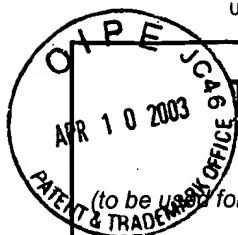


PTO/SB/21 (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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(to be used for all correspondence after initial filing)

<b>TRANSMITTAL FORM</b>		<b>Application Number</b>	09/638,485
		<b>Filing Date</b>	August 14, 2000
		<b>First Named Inventor</b>	Charles J. JACOBUS
		<b>Group Art Unit</b>	2837
		<b>Examiner Name</b>	Tyrone W. Smith
<b>Total Number of Items in This Submission (including Transmittal Form)</b>	6	<b>Attorney Docket Number</b>	IMM069D

**ENCLOSURES (check all that apply)**

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached Check ____ <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Supplemental Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input checked="" type="checkbox"/> CD, Number of CD(s) ____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Express Mail Certificate – EV 130 844 666 US; Transmittal Form PTO/SB/08A (formerly 1449); and Return Postcard		
<table border="1"> <tr> <td><b>Remarks</b></td> <td></td> </tr> </table>			<b>Remarks</b>	
<b>Remarks</b>				

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

<b>Firm or Individual name</b>	Goran P. Stojkovich, Esq., Kilpatrick Stockton LLP Reg. No. 45,841
<b>Signature</b>	<i>Goran Stojkovich</i>
<b>Date</b>	April 10, 2003

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Charles J. JACOBUS  
Serial No. : 09/638,485  
Filing Date : August 14, 2000  
Title : Force Feedback System and Actuator Power Management  
Examiner : Tyrone W. Smith  
Group Art Unit : 2837

Assistant Commissioner of Patents  
Washington, DC 20231

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Dear Sir:

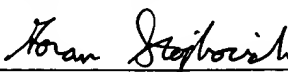
On January 21, 2003, Applicant submitted an Information Disclosure Statement concurrent with a Request for Continued Examination. The references were submitted in electronic form on a CD-ROM. It is believed that not all of the references were copied onto the CD-ROM. Accordingly, Applicant is submitting this Supplemental Information Disclosure Statement with the enclosed CD-ROM to provide a complete set of references.

It is believed that no fees are due for consideration of this Supplemental Information Disclosure Statement. However, should any fees be due, the Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. §1.16 or §1.17 which may be required during the entire pendency of this application, or to credit any overpayment, to Deposit Account No. 16-1435. A duplicate of this sheet is attached for that purpose.

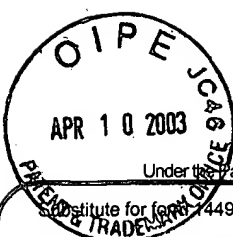
It is respectfully requested that the references listed on the attached form be expressly considered by the Examiner and be made of record in the application and appear among "References Cited" on any patent to issue therefrom.

Respectfully submitted,

Date: April 10, 2003

  
Goran P. Stojkovich,  
Reg. No. 45,841

Kilpatrick Stockton LLP  
1001 West Fourth Street  
Winston-Salem, NC 27101-2400  
Telephone: (336) 607-7300  
Facsimile: (336) 607-7500



Substitute for form 1449A/PTO

# SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 5

## Complete if Known

Application Number	09/638,485
Filing Date	August 14, 2000
First Named Inventor	Charles J. JACOBUS
Group Art Unit	2837
Examiner Name	Tyrone W. Smith
Attorney Docket Number	IMM069D

## U.S. PATENT DOCUMENTS

Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			
	AA	3,220,121	11/30/1965	Cutler	
	AB	3,517,446	6/30/1970	Corlyon et al.	
	AC	3,903,614	9/9/1975	Diamond et al.	
	AD	4,236,325	10/2/1980	Hall et al.	
	AE	4,513,235	4/23/1985	Acklam et al.	
	AF	4,599,070	7/8/1986	Hladky et al.	
	AG	4,708,656	11/24/1987	De Vries et al.	
	AH	4,713,007	12/15/1987	Alban	
	AI	4,891,764	1/2/1990	McIntosh	
	AJ	5,019,761	5/28/1991	Kraft	
	AK	5,022,407	6/11/1991	Horch et al.	
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	AM	5,271,290	12/21/1993	Fischer	
	AN	5,275,174	1/4/1994	Cook	
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	AT	4,581,491	4/8/1986	Boothroyd	
	AU	4,930,770	6/5/1990	Baker	
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	AW	5,035,242	7/30/1991	Franklin	
	AX	5,038,089	8/6/1991	Szakaly	
	AY	5,078,152	1/7/1992	Bond	
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	BB	5,334,027	8/2/1994	Wherlock	
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	BD	5,212,473	5/18/1993	Louis	
	BE	5,466,213	11/14/1995	Hogan	
	BF	5,766,016	6/16/1998	Sinclair	
	BG	5,186,685	2/16/1993	Mangseth et al.	
	BH	6,422,941	7/23/2002	Thorner et al.	
		6,111,577	8/29/2000	Zilles et al.	

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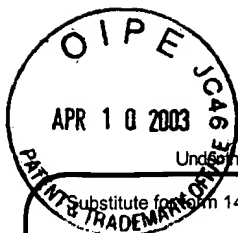
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Date  
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Kinds of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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**SUPPLEMENTAL INFORMATION  
DISCLOSURE STATEMENT BY  
APPLICANT**

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Sheet 2 of 5

**Complete if Known**

Application Number	09/638,485
Filing Date	August 14, 2000
First Named Inventor	Charles J. JACOBUS
Group Art Unit	2837
Examiner Name	Tyrone W. Smith
Attorney Docket Number	IMM069D

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>2</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
	BI	EP	EP0349086		1/31/1990	Visser	

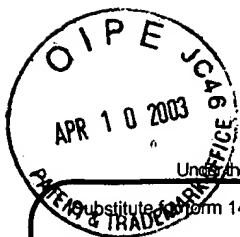
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<b>SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		<b>Compleat if Kn wn</b>			
		Application Number	09/638,485		
		Filing Date	August 14, 2000		
		First Named Inventor	Charles J. JACOBUS		
		Group Art Unit	2837		
		Examiner Name	Tyrone W. Smith		
Sheet	3	of	5	Attorney Docket Number	IMM069D

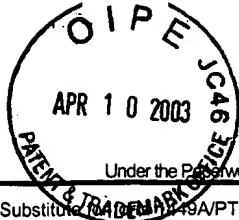
OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	BJ	BAIGRIE, "Electric Control Loading - A Low Cost, High Performance Alternative," Proceedings, pp. 247-254, November 6-8, 1990.	
	BK	IWATA, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp 287-292, 1993.	
	BL	RUSSO, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," MIT Libraries Archives 08/14/1990, pp. 1-131, May 1990.	
	BM	BROOKS et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," JPL Publication 85-11; NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985.	
	BN	JONES et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); Experimental Brain Research, Vol. 79, No. 1, pp. 150-156, 1990.	
	BO	BURDEA et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 IEEE International Conference on Robotics and Automation, pp. 25-44, 05/02/1993.	
	BP	SNOW et al., "Model-X Force-Reflecting-Hand-Controller," NT Control no. MPO-17851; JPL Case No. 5348, pp. 1-4, 06/15/1989.	
	BQ	OUH-YOUNG, "Force Display in Molecular Docking," Order No. 9034744, p. 1-369, 1990.	
	BR	TADROS, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators, MIT Archive© Massachusetts Institute of Technology, pp. 1-88, February 1990.	
	BS	CALDWELL et al., "Enhanced Tactile Feedback (Tele-Traction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993.	
	BT	ADELSTEIN, "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, Advances in Robotics, Edited by H. Kazerooni, pp. 1-12, 1992.	
	BU	GOTOW et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337	
	BV	STANLEY et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSV-Vol. 42, Advances in Robotics, pp. 55-61, ASME 1992.	
	BW	RUSSO, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, Advances in Robotics, pp. 63-70, ASME 1992.	

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Substitute Form 149A/PTO		<b>C m p l e i f K n w n</b>	
<b>SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		Application Number	09/638,485
		Filing Date	August 14, 2000
		First Named Inventor	Charles J. JACOBUS
		Group Art Unit	2837
		Examiner Name	Tyrone W. Smith
Sheet 4 of 5	Attorney Docket Number	IMM069D	

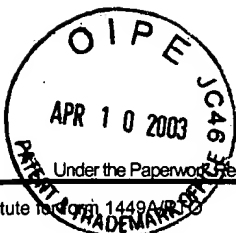
OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	BX	KONTARINIS et al., "Display of High-Frequency Tactile Information to Teleoperators," Telemanipulator Technology and Space Telerobotics, Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993.	
	BY	PATRICK et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," Cooperative Intelligent Robotics in Space, Rui J. deFigueiredo et al., Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990.	
	BZ	ADELSTEIN, "A Virtual Environment System For The Study of Human Arm Tremor," Ph.D. Dissertation, Dept. of Mechanical Engineering, MIT, June 1989.	
	CA	BEJCZY, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," Science, Vol. 208, No. 4450, pp. 1327-1335, 1980.	
	CB	BEJCZY, "Generalization of Bilateral Force-Reflecting Control of Manipulators," Proceedings Of Fourth CISM-IFTOMM, Sep. 8-12, 1981.	
	CC	MACFEE, "Teleoperator Subsystem/Telerobot Demonstration: Force Reflecting Hand Controller Equipment Manual," JPL D-5172, pp. 1-50, A1-A36, B1-B5, C1-C36, January 1988.	
	CD	MINSKY, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," Ph.D. Dissertation, MIT, June 1995.	
	CE	JACOBSEN et al., "High Performance, Dexterous Telerobotic Manipulator With Force Reflection," Intervention/ROV '91 Conference & Exposition, Hollywood, Florida, May 21-23, 1991.	
	CF	SHIMOGA, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration, Rensselaer Polytechnic Institute, Sep. 30 - Oct. 1, 1992.	
	CG	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990.	
	CH	TERRY et al., "Tactile Feedback In A Computer Mouse," Proceedings of Fourteenth Annual Northeast Bioengineering Conference, University of New Hampshire, March 10-11, 1988.	
	CI	HOWE, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," Proceedings of the 1992 IEEE International Conference on Robotics and Automation, Nice, France, May 1992.	
	CJ	EBERHARDT et al., "OMAR - A Haptic display for speech perception by deaf and def-blind individuals," IEEE Virtual Reality Annual International Symposium, Seattle, WA, Sep. 18-22, 1993.	
	CK	RABINOWITZ et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," Journal of The Acoustical Society of America, Vol. 82, No. 4, October 1987.	

Examiner Signature	Date Considered
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Sheet	5	of	5	Attorney Docket Number	IMM069D

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
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	CL	BEJCZY et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," International Computer Technology Conference, The American Society of Mechanical Engineers, San Francisco, CA, August 12-15, 1980.	
	CM	BEJCZY et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," SOAR '89 Workshop, JSC, Houston, TX, July 25-27, 1989.	
	CN	OUH-YOUNG, "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," IEEE Transactions on Consumer Electronics, Vol. 41, No. 3, August 1995.	
	CO	MARCUS, "Touch Feedback in Surgery," Proceedings of Virtual Reality and Medicine The Cutting Edge, Sep. 8-11, 1994.	
	CP	BEJCZY, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987.	
	CQ	AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.	
	CR	EBERHARDT et al., "Including Dynamic Haptic Perception by The Hand: System Description and Some Results," DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1, ASME 1994.	
	CS	GOBEL et al., "Tactile Feedback Applied to Computer Mice," International Journal of Human-Computer Interaction, Vol. 7, No. 1, pp. 1-24, 1995.	
	CT	PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 <sup>nd</sup> Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.	
	CU	"Cyberman Technical Specification," Logitech Cyberman SWIFT Supplement, 4/5/1994.	
	CV	OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95, Seoul, Korea, 21-24 August 1995.	
	CW	KACZMAREK et al., "Tactile Displays," Virtual Environment Technologies.	

Examiner Signature		Date Considered	
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<sup>1</sup> EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Kinds of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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